

IN THE CLAIMS

The following listing of the claims is provided in accordance with 37 C.F.R. § 1.121.

1. (currently amended) A temperature measuring system, comprising:

a heat source;

a component coupled to the heat source; and

at least one thermistor coupled to the component and adapted to monitor temperature of the component, wherein the thermistor comprises a body formed of a core-shell micro-structure of particles, each particle has a chromia-based core coated with a shell to reduce chromia loss due to chromia volatilization at high temperatures, having a shell disposed about a core, the core comprising Cr₂O₃, and the shell comprising a rare earth element compound.

2. (original) The system according to claim 1, wherein the heat source is an engine.

3. (original) The system according to claim 1, wherein the component is a catalytic converter.

4. (original) The system according to claim 1, comprising a measuring device coupled to the thermistor.

5. (original) The system according to claim 1, comprising a motorized vehicle.

6. (previously presented) The system according to claim 1, wherein the rare earth element compound is selected from a group consisting of Pr, Nd, Sm, Eu, Gd, Tb, Dy, Er, Yb, Ce, and Y.

7. (original) The system according to claim 1, wherein the shell is substantially stable at a temperature up to about 1000 degrees Celsius.

8. (cancelled)

9. (currently amended) The system according to claim 1, wherein the rare earth element compound comprises shell is formed by at least one compound selected from a group consisting of ~~M₂O₃, MCrO₃, M-nitrate, M-carbonate, M-hydroxide, alkooxides, carboxylates, and/or a mixture of M₂O₃ and Cr₂O₃, wherein M comprises the~~ a rare earth element compound.

10. (currently amended) The system according to claim 9, wherein the at least one rare earth element compound comprises an aliovalent dopant selected from a group consisting of ~~comprising~~ Ca, Ba, Sr, Mg, Si, or and Ti.

11. (currently amended) A thermistor, comprising:

a plurality of electrical contacts; and

a thermistor body coupled to the plurality of electrical contacts, wherein the thermistor body comprises a body formed of a core-shell microstructure of particles, each particle has a chromia-based core coated with a shell to reduce chromia loss due to chromia volatilization at high temperatures, and having a shell disposed about a core, the shell comprising ~~a shell disposed about a core, the shell comprising~~ a rare earth element compound, ~~the core comprising Cr₂O₃~~.

12. (original) The thermistor according to claim 11, wherein the shell is adapted to stabilize the core up to temperature of about 1000 degrees Celsius.

13. (cancelled)

14. (currently amended) The thermistor according to claim 11, wherein the shell comprises $M\text{CrO}_3$, and M comprises the rare earth element-~~compound~~.

15. (currently amended) The thermistor according to claim 14, where M comprises is selected from a group consisting of Pr, Nd, Sm, Eu, Gd, Tb, Dy, Er, Yb, Ce, and or Y.

16. (currently amended) The thermistor according to claim 11, wherein the shell comprises $M_2\text{O}_3$, and M comprises the rare earth element-~~compound~~.

17. (currently amended) The thermistor according to claim 11, wherein the shell comprises $M\text{CrO}_3$, and M comprises the rare earth element-~~compound~~, which comprises Y.

18. (currently amended) The thermistor according to claim 11, wherein the shell is formed bycomprises at least one compound selected from a group consisting ofcomprising $M_2\text{O}_3$, $M\text{CrO}_3$, M-nitrate, M -carbonate, M- hydroxide, alkooxides, carboxylates, and or a mixture of $M_2\text{O}_3$ and Cr_2O_3 , wherein M comprises the rare earth element-~~compound~~.

19. (currently amended) The thermistor according to claim 11, wherein the shell is formed bycomprises at least one aliovalent doped compound selected from a group consisting ofcomprising $M_2\text{O}_3$, $M\text{CrO}_3$, M-nitrate, M-carbonate, M-hydroxide, alkooxides, carboxylates, and or a mixture of $M_2\text{O}_3$ and Cr_2O_3 , wherein M comprises the rare earth element-~~compound~~.

20. (currently amended) The thermistor according to claim 11, wherein the shell comprises at least one aliovalent dopant selected from a group consisting ofcomprising Ca, Ba, Sr, Mg, Si, and or Ti.

21. (original) The thermistor according to claim 11, wherein the temperature measuring stability of the thermistor ranges up to about 1000 degrees Celsius.

22. (original) The thermistor according to claim 11, wherein the thermistor has a temperature measuring variability of less than plus or minus 5 degrees Celsius after about 1000 hours at about 1000 degrees Celsius.

Claims 23-40 (cancelled)